UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

CARNEGIE INSTITUTION OF WASHINGTON, M7D CORPORATION,

Plaintiffs,

v.

PURE GROWN DIAMONDS, INC. and IIA TECHNOLOGIES PTE. LTD d/b/a IIA TECHNOLOGIES,

Defendants.

PURE GROWN DIAMONDS, INC.,

Counterclaim-Plaintiff,

v.

CARNEGIE INSTITUTION OF WASHINGTON, M7D CORPORATION,

Counterclaim-Defendants.

Civil Action No. 1:20-cv-00189-JSR

PLAINTIFFS' MEMORANDUM OF LAW
IN OPPOSITION TO DEFENDANTS' MOTION FOR SUMMARY JUDGMENT

TABLE OF ABBREVIATIONS

ABBREVIATION	REFERENCE
’078 patent	U.S. Patent No. 6,858,078
’189 patent	U.S. Patent No. RE41,189
2A	IIA Technologies PTE, Ltd. D/B/A/ IIA Technologies (Individually)
IIA	Pure Grown Diamonds, Inc. and IIA Technologies PTE, Ltd. D/B/A/ IIA Technologies (Collectively)
asserted claims	’078 patent claim 1, 6, 11, 12, 16 and, 20 and ’189 patent claims 1 and 2
asserted patents	U.S. Patent No. 6,858,078 and U.S. Patent No. RE41,189 (Collectively)
CVD	chemical vapor deposition
HPHT	high-pressure, high-temperature
Mem.	Mem. of Law in Supp. of Defs. Pure Grown Diamonds, Inc. and IIA Techs. PTE. Ltd.’s Mot. for Summ. J., ECF No. 95
MPCVD	microwave plasma chemical vapor deposition
Plaintiffs	Carnegie Institution of Washington and M7D Corp. (Collectively)
POSA	person of ordinary skill in the art
PSOF	Plaintiffs’ Statement of Material Facts in Support of Their Opposition to Defendants’ Motion for Summary Judgement
Pure Grown	Pure Grown Diamonds, Inc. (Individually)
SOF	Local Rule 56.1 Statement of Material Facts in Support of Defendants Pure Grown Diamond, Inc. and IIA Technologies PTE. Ltd.’s Motion for Summary Judgment, ECF No. 96

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I. INTRODUCTION

IIA leaves nothing on the cutting room floor, moving for summary judgment of both non-infringement and invalidity of every single asserted claim of both asserted patents. Indeed, despite the high hurdle IIA must clear to carry its burden, IIA brings ten separate bases on which it believes summary judgment is warranted. As shown below, the quantity of IIA's arguments do not make up for their lack of quality. IIA's positions which often turn on distortions of the Court's claim construction require a one-sided reading of the record that simply is not permitted at summary judgment. The issues that IIA claims are "undisputed" are actually hotly contested and highly material disputes at the heart of this lawsuit not appropriate for summary judgment.

II. BACKGROUND AND ASSERTED PATENTS

This case involves patents on methods for growing and treating diamonds in a laboratory. Properties of lab-grown diamonds vary based on manufacturing processes used. PSOF ¶ 1-7, 21-23, 27-28. Some can make a single-crystal (monocrystalline) diamond; others make diamond with many crystals (polycrystalline). PSOF ¶ 9. Monocrystalline diamonds are used as gemstones, while polycrystalline diamonds are typically used in industrial applications. PSOF ¶ 10.

It was known that MPCVD methods could produce "small quantities of diamond," but the known processes resulted in slow growth rates. PSOF ¶ 11. Attempts to grow single-crystal diamond at higher rates were unsuccessful. PSOF ¶ 12. The '078 patent's inventors researchers at the Carnegie Institution of Washington developed an approach enabling faster growth of substantially single-crystal diamonds (albeit, with a small degree of polycrystallinity). PSOF ¶ 13.

The '078 patent discloses the growth of single-crystal diamonds by controlling the growth surface temperatures so that all temperature gradients across the growth surface are less than 20 °C. PSOF ¶¶ 14-17. The patent describes factors that influence the process:

The ability to control all of the temperature gradients across the growth surface of

> the diamond **136** is influenced by several factors, including the heat sinking capability of the stage **124**, the positioning of the top surface of the diamond in the plasma **141**, the uniformity of the plasma **141** that the growth surface of the diamond is subjected to, the quality of thermal transfer from edges of the diamond via the holder or sheath **134** to the stage **124**, the controllability of the microwave power, coolant flow rate, coolant temperature, gas flow rates, reactant flow rate and the detection capabilities of the infrared pyrometer **142**.

PSOF ¶ 16. By adjusting these parameters, the inventors were able to reduce defects and grow "large, high quality diamonds with increased growth rates." PSOF ¶ 17.

Laboratory-grown diamonds can have flaws limiting their use. PSOF ¶ 24. Flaws can lead to single-crystal and polycrystalline CVD diamonds that "range from opaque to fully transparent," even being "very dark" and "opaque to optical transmission." *Id*. While diamond suppliers attempted to improve natural and HPHT diamond properties with "annealing" processes, they often resulted in cracks, darkening, and even converting the diamond to graphite. PSOF ¶ 25.

The '189 patent describes methods of improving the optical clarity of *single-crystal CVD* diamond (as opposed to natural and HPHT diamond) by subjecting it to HPHT annealing conditions, i.e., certain minimum temperatures and pressures. Applying high pressures and temperatures results in a more perfect diamond crystalline material, and improves the diamond's optical, electrical, thermal, and mechanical properties, increasing its value. PSOF ¶ 26.

III. ARGUMENT

A. There Are Disputed Issues of Material Fact Regarding Whether IIA Infringes the '078 Patent.

To grant summary judgment of noninfringement, either literally or under the doctrine of equivalents, a court must determine that, after resolving factual inferences in favor of the patentee, no reasonable jury could find infringement. *Bose Corp. v. JBL, Inc*., 274 F.3d 1354, 1358 (Fed. Cir. 2001). That is not the case here. IIA has raised serial challenges to Plaintiffs' infringement claims, and Plaintiffs have responded with abundant infringement evidence, including expert

testimony. This is sufficient to defeat summary judgment. *See id.*

1. Whether IIA Manufactures "Single-Crystal Diamond" Is Disputed.

IIA first argues it does not infringe the "single-crystal diamond" limitation because its diamonds are [redacted]." Mem. 4-6. That is, IIA claims its diamonds are too [redacted] to infringe. Oddly, according to CEO Vishal Mehta, Defendants manufacture and sell "[redacted] PSOF ¶ 36. IIA touts its diamonds as "the purest and rarest diamonds," and "indistinguishable from mined diamonds, even under a microscope." PSOF ¶ 36. And 2A's Dr. Misra likewise confirmed that its diamonds are [redacted]." PSOF ¶ 37. Regardless, in moving for summary judgment, IIA mischaracterizes the Court's claim construction and the record.

The '078 patent teaches that controlling the temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C results in substantially single-crystal diamonds, i.e., with only "a small degree of polycrystallinity." PSOF ¶ 41. Recognizing this, both Plaintiffs and IIA offered "single-crystal diamond" constructions that allowed for some degree of polycrystallinity. PSOF ¶¶ 43. The Court thus construed the term to mean "a stand alone diamond [made by CVD] having insubstantial non-monocrystalline growth," acknowledging that a stand-alone diamond remains "single crystal" even if containing "small and localized amounts of polycrystallinity or other impurities." PSOF ¶ 44.

Applying this construction, and in view of the evidence IIA produced, Plaintiffs' infringement expert (Dr. Capano) performed a series of experiments to determine that IIA's diamonds are [redacted] PSOF ¶ 46. These included [redacted] PSOF ¶ 46. Based on this work, Dr. Capano "confirm[ed] the [redacted] PSOF ¶ 50.

IIA nonetheless argues that the [redacted] Mem. 4-6. But under the Court's construction, the presence of [redacted] does not disprove its single-crystal nature; "insubstantial" non-monocrystalline growth may be present in an infringing diamond. In fact, IIA, like all others in the industry, [redacted] PSOF ¶ 52-53. And IIA witnesses concede their [redacted]. PSOF 55-56. Applying IIA's logic would thus have an absurd result: no MPCVD diamond process could ever infringe because of a necessary byproduct of the growth process.

Moreover, that some defects can be visually observed does not mean the diamond has more than "insubstantial non-monocrystalline growth," as allowed under the construction. IIA points to cherry-picked images of diamonds [redacted] which their attorneys IIA offers no expert evidence on this point claim indisputably prove [redacted] and show the diamonds are not "single-crystal." Mem. 5. IIA offers no proof that these [redacted] on IIA's carefully curated images indicate [redacted] let alone any undisputed evidence. Even 2A's witnesses are unclear on this point, describing [redacted] that appear in 2A's diamonds and [redacted] PSOF ¶¶ 55-56, 91. Regardless, IIA's unsupported attorney argument cannot overcome Dr. Capano's contrary evidence. *See* PSOF ¶¶ 46-50, 54, 62.

What's more, IIA never assesses whether the [redacted] are "insubstantial," which is disputed. Mem. 5. According to IIA's attorneys, the [redacted]

[redacted] Mem. 5.[1] But these [redacted] are not enough to damage their value as gemstones; IIA still touts the color, clarity, and appearance of its diamonds. PSOF ¶ 36-38.

In an effort to buttress their attorney argument, IIA cites Dr. Vohra's testimony concerning visible [redacted] Mem. 4. But Dr. Vohra discussed diamonds grown in *his* lab for research purposes not IIA's stones that are sold as high-quality gem stones. PSOF ¶ 59. IIA ignores additional testimony from the named inventors, which establishes the gold standard [redacted] the experiments that Dr. Capano performed. PSOF ¶¶ 59-61. Visual inspection doesn't pass muster. PSOF ¶ 59-61. Regardless, IIA's claim (based on Dr. Vohra's testimony) that if "there is one twin, then it's not a single crystal" (Mem. 4), cannot be squared with the Court's construction, which allows insubstantial non-monocrystalline growth.

Finally, IIA mischaracterizes Dr. Capano's opinion when it alleges that he "ignores" non-monocrystalline growth, or that he opines that any diamond with "at least some single-crystal material" would meet the Court's construction. Mem. 6. To the contrary, Dr. Capano provides a detailed discussion of what he considers to be insubstantial, non-monocrystalline growth, explaining how his analysis meets the Court's construction. PSOF ¶ 47-49. Dr. Capano followed best practices, [redacted] PSOF ¶ 45-46, 50. This evidence is sufficient to defeat IIA's motion.

To follow IIA's argument is to believe that the inventors of the '078 patent bested Mother Nature and created diamonds that look like they belong in jewelry immediately after growth. No such thing has occurred or been claimed, and much like the diamonds that come from the ground,

[1] IIA's expert Dr. Nebel testified that he had no information about how the photos were taken, and did not know, for example, what contrast setting was used. PSOF ¶ 58.

laboratory-grown diamonds require some post processing. IIA would have the Court ignore this truth and instead focus on the natural byproduct of laboratory diamond growth, all of which is easily removed, instead of the diamonds that are created.

2. Whether IIA "Control[s] the Temperature of a Growth Surface Such that All Temperature Gradients Are Less than 20°C" Is Disputed.

IIA claims it is entitled to summary judgment that it does not "control[] [the] temperature of a growth surface of the diamond such that all temperature gradients are less than 20°C." Mem. 6-9. At bottom, whether IIA practices this limitation is a disagreement between experts. As described below, Dr. Capano offers an opinion that IIA infringes; IIA's Dr. Nebel disagrees. In such circumstances, summary judgment is inappropriate. *Crown Packaging Tech., Inc. v. Ball Metal Beverage Container Corp.*, 635 F.3d 1373, 1384 (Fed. Cir. 2011).

IIA's argument boils down to the theory that it [redacted] and thus it does not infringe. IIA ignores testimony from 2A's technical director, who explained that when [redacted]. PSOF 64. In any event, Plaintiffs have offered evidence of the [redacted] in 2A's process. Dr. Capano performed experiments designed to "investigate 2A asserted temperature and pressure conditions and to explain…the underlying physical principles active during growth under such conditions." PSOF ¶ 65.

> In order to assess the lower pressure growth conditions employed by 2A and their impact on surface temperature gradients and diamond growth, a diamond seed was exposed to conditions more closely matching those 2A uses in its commercial SCP diamond production, namely, [redacted]….the experiment demonstrates uniform diamond growth and the lack of a temperature gradient exceeding 20 °C.

PSOF ¶ 65. Dr. Capano also performed a Finite Element Analysis ("FEA"), modeling the heat transfer from the plasma to the diamond, focusing on uniform plasmas like 2A's. He concluded:

> the information obtained from 2A regarding the uniformity of its process, the high thermal conductivity of diamonds, and the FEA discussed above, permit me to conclude that MPCVD diamond growth at 2A using the commercial SCP recipe and process does not occur outside the claimed limitation of a 20 °C temperature gradient. (PSOF ¶ 66)

IIA is wrong when it claims these experiments are "legally irrelevant." Mem. 8. The experiments evaluated 2A's processes and are relevant to infringement. *Spansion, Inc. v. ITC*, 629 F.3d 1331, 1352 (Fed. Cir. 2010) (FEA demonstrated that the accused products practiced the claimed limitations and was "relevant expert testimony").[2] IIA attacks Dr. Capano's methodology, but that goes to weight, which is for the trier of fact to evaluate at trial. That Dr. Nebel offers *contrary* testing through a different method[3] (*see* SOF ¶¶ 66; Mem. 7-8) merely underscores that this is a classic battle of the experts. One expert may ultimately prevail at trial, but such disputes cannot be resolved at summary judgment. *Crown Packaging*, 635 F.3d at 1384.[4]

IIA further claims that it does not infringe the "temperature gradient" limitation because its equipment does not include a substrate holder [redacted] Mem. 6. But the asserted claims do not require [redacted], SOF ¶ 3, and both fact and expert witnesses explained that such a holder is not necessary to achieve the claimed temperature gradient, as shown by Dr. Capano's experiments and FEA. PSOF ¶¶ 74-77.

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[2] IIA offers *SRI International v. Matsushita Electrical Corp.*, for the undisputed proposition that infringement is determined by comparing the accused product to the claims. 775 F.2d 1107 (Fed. Cir. 1985) (en banc). In fact, the *SRI* court *overturned* a finding of summary judgment. *Id.* at 1126.

[3] IIA takes issue with Dr. Capano's testing, but he could not have conducted Dr. Nebel's direct measurement, given that he does not have access to 2A's facility and equipment, which 2A has represented is [redacted]. PSOF ¶ 67. Yet, remarkably, 2A was nonetheless able to provide this data to Dr. Nebel.

[4] Notably, the testing Dr. Nebel relies upon which again, Dr. Capano could not have conducted (1) was not done by Dr. Nebel (who was not even present), (2) only recorded data [redacted] (3) followed no established rationale for the movement of the pyrometer, and (4) omitted images of where on the stones the pyrometers were actually pointing meaning there is no evidence that the pyrometers even evaluated the temperature gradient across the growth surface. PSOF ¶ 68-73. Raising more questions than answers, this data is not evidence of the caliber necessary for a dispositive ruling even in the absence of Plaintiffs' contrary evidence.

Recycling its "single-crystal" argument, IIA next posits that [redacted] proves that its temperature gradients must be more than 20°C. Mem. 7-8. For the same reasons its single-crystal theory fails, this argument too fails. IIA has not shown that its diamonds have more than insubstantial non-monocrystalline growth. *See supra* Part IV.A.1. IIA's attempt to characterize the [redacted] as evidence of non-monocrystalline material resulting from high temperature gradients is a red-herring. Mem. 7-8. The patented method allowed "a large single crystal diamond to be grown" with "a small degree of polycrystallinity localized at the top edges of the diamond." SOF ¶¶ 6-7; PSOF ¶ 78. This is what [redacted]; its argument that non-monocrystalline growth "would not occur if all temperature gradients were maintained less than 20º C" is unsupported by the evidence, and thus presents an issue of fact. Mem. 7.

While IIA complains that it does not infringe because it does not directly measure gradients (Mem. 7-8), IIA already lost this argument. At *Markman*, IIA argued that the patent required (1) *measuring* two different temperatures, and (2) using the *measured* temperatures for gradient control. PSOF ¶¶ 79. The Court disagreed. PSOF ¶ 80-81. The Court found the claims "refer to 'all temperature gradients across the growth surface,' not merely those measured between the middle and the edge," PSOF ¶ 80, and that "controlling" should be defined "more broadly" to encompass not only measured temperatures, but a number of "other inputs [that] are also 'used' to control the gradients." PSOF ¶81. IIA's theory is also disputed by Dr. Capano, who explained that temperature "does not have to be directly measured"; 2A's CVD chambers "permit control of various other process parameters [redacted] by adjusting those parameters, control over temperature can be achieved even though it is never measured. PSOF ¶ 82.

Unlike IIA, Dr. Capano properly applied the Court's construction of "growth surface." IIA

accuses Dr. Capano of ignoring "all non-monocrystalline growth" because it is not a part of "the growth surface" (Mem. 8), but this is untrue. The Court recognized that in the beginning "the growth surface is the exterior surface of the diamond seed," which then shifts outward as "hydrocarbon gases accrue onto the seed to form new diamond." PSOF ¶ 83. With this in mind, "growth surface" was construed to mean "the surface upon which ***diamond growth*** is occurring," which could include "localized places" having "small amounts of polycrystalline diamond." PSOF ¶ 84. The claims specifically require "growing single crystal diamond...on the growth surface," and Dr. Capano's opinions are consistent with this guidance. To explain, in 2A's process, [redacted]. PSOF ¶ 85. [redacted] PSOF ¶86-88. Dr. Nebel confirmed that [redacted] PSOF ¶ 86-88. 2A's own witnesses have confirmed [redacted]. PSOF ¶¶ 89-92. Dr. Capano correctly interpreted the term "growth surface" to exclude non-diamond carbon and other material that forms in the gaps, around the seeds, or over the single crystal diamond once it stops growing. IIA's position, in contrast, appears to be that any surface within the chamber, including [redacted] and the bottom holder of the seeds, constitute the "growth surface" as all of these surfaces have [redacted] deposited on them during the process.

Regardless, while the experts disagree on what constitutes the growth surface, no one disagrees that it is industry practice to cut off the "overgrowth" upon removal from the chamber to isolate each diamond seed that is now a grown single crystal diamond. PSOF ¶ 52. This has always been and will remain so until someone develops a process that bests Mother Nature, where cut and polished diamonds emerge from the chamber and can be placed directly into a ring.

3. Whether IIA Practices the Claimed Pressure and Temperature Limitations Is Disputed.

IIA argues that it does not literally practice the pressure limitation recited in Claims 1, 6, and 16, or the temperature limitation recited in Claim 12. Mem. 3-4. Plaintiffs do not assert literal infringement of these limitations, so to the extent it addresses literal infringement, IIA's motion is moot. Plaintiffs do, however, assert infringement of the pressure and temperature limitations under the doctrine of equivalents ("DOE"), which is satisfied if the feature of the accused product performs substantially the same function, in substantially the same way, to achieve substantially the same result as the limitation of the patent claim. *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950). The DOE inquiry presents difficult factual determinations, often rendering summary judgment improper. *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1360 (Fed. Cir. 2002).

It is undisputed that 2A grows diamonds at [redacted]. SOF ¶¶ 48, 50-51. Plaintiffs have offered evidence supporting that these temperatures and pressures which [redacted] the literal scope of the claim are *equivalent* to the claimed temperatures and pressures. Dr. Capano applied the function-way-result test and determined that growing diamonds at a pressure [redacted] is equivalent to growing diamonds at 130 torr. PSOF ¶¶ 96-104. These methods perform substantially the same function: growing single-crystal diamond. PSOF ¶ 97. 2A accomplishes this function in substantially the same way: using an MPCVD process in a system with [redacted]. PSOF ¶ 98-102. And 2A's process achieves substantially the same result: single-crystal diamond. PSOF ¶ 104. Publicly available literature, 2A's own admissions, and Dr. Capano's experiments all confirm that any differences between single crystal diamonds grown at a pressure of [redacted] as opposed to

single-crystal diamonds grown at a pressure of 130 torr are insubstantial. PSOF ¶¶ 104.

Dr. Capano also applied the function-way-result test to determine that growing diamonds at [redacted] is equivalent to growing diamonds at [redacted] PSOF ¶ 105-15. These methods perform substantially the same function: growing single-crystal diamond. PSOF ¶ 106. 2A accomplishes this function in substantially the same way: using an MPCVD process in a system with the [redacted]. PSOF ¶ 107-14. 2A's process achieves substantially the same result: single-crystal diamond. PSOF ¶ 115. Publicly available literature and 2A's admission confirm that any difference is insubstantial between single-crystal diamonds grown [redacted] as opposed to those grown at a temperature of 900 °C. PSOF ¶ 115-16.

IIA quibbles with this evidence, claiming Dr. Capano failed to compare the accused IIA method with the properly construed claims, instead comparing a hypothetical method. Mem. 14. Based on the available information, Dr. Capano compared IIA's process (e.g., [redacted]) to a process using pressure and temperature within the literal scope of the claim (e.g., 130 torr [redacted] finding they were equivalent. PSOF ¶¶ 96-116. This is the appropriate DOE inquiry. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40-41 (1997). [redacted] *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731-32 (2002).

4. Whether IIA Infringes Under the DOE Is Disputed.

In addition to its specific arguments with respect to the pressure and temperature limitations, IIA more generally argues that it is entitled to summary judgment with respect to its overall system. Mem. 11-15. This argument details a number of features e.g., "holders" and "growth chemistries" and "reactor design" and the absence of [redacted] that it claims distinguish

its process from the claimed process. *Id.* The asserted claims do not recite, e.g., specific holder configurations, growth chemistries, or [redacted] levels. PSOF ¶ 117. These additions are accordingly irrelevant to whether IIA infringes under the DOE. *Warner-Jenkinson*, 520 U.S. at 40-41.

IIA further claims it should be permitted to dodge infringement because development of its process required effort. Mem. 11-12. IIA relies on a variety of system components that are not claimed in the patent. *See id.* Moreover, IIA offers no evidence that it was actually successful in dodging the '078 patent's limitations Dr. Capano stands unrebutted. IIA acknowledges that Plaintiffs through Dr. Capano offered "evidence of equivalents," but claims Dr. Capano "ignore[s] the complexities of this technology." Mem. 13. IIA can confront Dr. Capano with this issue at trial, but summary judgment is not the appropriate vehicle for settling their disagreement.

5. Plaintiffs Are Not Precluded from Asserting the DOE.

IIA further claims that Plaintiffs are precluded from asserting the DOE because Plaintiffs would "reclaim" subject matter previously "surrendered." Mem. 9-11. According to IIA, Plaintiffs disclaimed methods with pressure below 130 torr or temperatures below 900 °C. when Plaintiffs allegedly criticized lower pressure and temperature processes in the specification. *See id.*

The recitation of a specific numerical value in a claim does not foreclose application of the DOE. *Adams Respiratory Therapeutics, Inc. v. Perrigo Co.*, 616 F.3d 1283, 1292 (Fed. Cir. 2010). To be sure, a patentee may not be able to assert DOE when that value was expressly selected to circumvent the prior art. *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 347 F.3d 1355, 1360 (Fed. Cir. 2003). IIA offers no evidence that this is the case here. Mem. 10.[5] Rather, IIA offers generalizations of the "Background" section of the patent specification, claiming the patentees

[5] The '078 patent claims recite control of the temperature of the growth surface such that the temperature gradients are less than 20° C. PSOF ¶ 118. IIA offers no evidence that prior art processes using lower temperature or pressure disclosed such control, thereby making the addition of temperature and pressure limitations necessary to traverse the prior art. *See* Mem. 9-11.

disavowed lower-temperature and lower-pressure prior art process because they resulted in polycrystallinity and twinning. *Id.*[6] The specification does not criticize processes because they have lower temperatures and, to the extent "low pressures" are distinguished, it is processes that "*require*" pressures below 100 torr. PSOF ¶¶ 119-20; *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1310 (Fed. Cir. 2007) ("[T]o the extent Paice drew a distinction between its design and the [prior art], the distinction is clearly secondary and equivocal at best."). But nothing in the specification indicates the inventors intended to exclude temperatures just [redacted] and only [redacted] outside the claims. *Arthrex, Inc. v. Smith & Nephew, Inc.*, No. 15-CV-01047, 2016 WL 7049397, at *3 (E.D. Tex. Dec. 5, 2016) (a disavowal must be "unmistakable").[7]

6. Whether IIA Infringes Under 35 U.S.C. § 271(g) Is Disputed.

35 USC § 271(g)(1) provides that "[a] product which is made by a patented process will...not be considered to be so made after…it is materially changed by subsequent processes." This exception "requires, at a minimum, that there be *a real difference* between the product imported, offered for sale, sold, or used in the United States and the products produced by the patented process." *Bio-Tech. Gen. Corp. v. Genentech, Inc.*, 80 F.3d 1553, 1560 (Fed. Cir. 1996) (emphasis added). IIA argues that annealing "materially changes" its CVD diamonds, and, thus,

[6] IIA again distorts the claim construction. Mem. 10. According to IIA, Plaintiffs contend IIA's process is equivalent "despite the substantial non-monocrystalline growth that results and the lower temperatures and pressures used." *Id.* Under the Court's construction, "insubstantial non-monocrystalline growth" infringes the single-crystal diamond limitation as addressed above, IIA's [redacted] process results in only insubstantial polycrystalline growth.

[7] Given that the patentees did not disparage the equivalent temperatures and pressures, IIA's cases are inapposite. Mem. 11 (citing *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1347 (Fed. Cir. 2001) (DOE not permitted with an "explicit disclaimer"); *Astrazeneca AB v. Mut. Pharm. Co.*, 384 F.3d 1333, 1340 (Fed. Cir. 2004) (claim does not include matter "clearly disavow[ed]"); *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1561 (Fed. Cir. 1997) (no DOE where "specifically exclude[ed]" the alleged equivalent); *Dolly, Inc. v. Spalding & Evenflo Companies, Inc.*, 16 F.3d 394, 400 (Fed. Cir. 1994) (no DOE where both "specifically excluded" and not equivalent)).

they cannot infringe the '078 patent.[8] IIA's arguments are both legally and factually unsupported.

The "materially changed" exception does not apply where the imported product falls within the scope of the process claim, even where that product differs from the product made by the patented process. In *Bio-Technology General*, the court rejected the argument that the change of met-hGH into hGH before importation "materially changed" the product, noting that the imported product was also within the scope of the claim. 80 F.3d at 1559-60. Here, too, the imported diamonds fall within the '078 patent claims, despite having been annealed. PSOF ¶¶ 23, 121.

In fact, the '078 patent specification *expressly contemplates* that diamonds grown according to the claimed process may be annealed to change color: "The colors of diamond formed by the methods discussed above [can] be changed by annealing." PSOF ¶ 121.[9] There is simply no evidence that annealing of diamond as described in the '078 patent constitutes a material change. Annealing does not change a diamond's carat, shape, or size. PSOF ¶ 124. Indeed, as Dr. Capano confirmed, after annealing, "*the diamond is still a diamond*." PSOF ¶ 125. While annealing may cause a rearrangement of atoms, "[t]he changes in the annealing process are really not that significant" and Dr. Capano "wouldn't describe them as a material change." PSOF ¶ 126.

While IIA relies on *Eli Lilly & Co. v. American Cyanamid Co.*, in that case, "[t]he chemical properties of the two compounds are completely different, the 'basic utility'…is different, and the chemical structure...is significantly different." 82 F.3d 1568, 1577 (Fed. Cir. 1996). There are no such differences here. IIA's expert, Dr. De Weerdt, confirmed that annealing a diamond will still

[8] IIA does not make this argument with respect to the '189 patent, as the process that IIA claims "materially changes" the diamonds is the process of the '189 patent. IIA offers no precedent permitting a party to escape liability for infringing one patent by infringing another patent.

[9] The specification of the '078 patent also incorporates by reference a paper by the inventors that reported that "[o]ne promising technique is to use HPHT treatment to fix and enhance cracked, brownish MPCVD diamond to produce colorless material." PSOF ¶¶ 122-123.

result in a diamond, as the repeating arrangement of carbon atoms remains after annealing. PSOF ¶ 127. He further testified that annealing does not cause nitrogen impurities to be removed. PSOF ¶ 128. In fact, Dr. De Weerdt could not confirm whether 2A's annealing process improves the shade, thermal conductivity, or electrical resistance of the diamonds. PSOF ¶ 129.

Indeed, the legislative history of § 271(g) includes, as a specific example, that: "A metal strip with certain unique properties is produced by a U.S. patented process.…*[T]aking that metal strip and hear [sic: heat] treating or annealing it in a magnetic field would not change the product as to avoid infringement*." *Id*. (emphasis added). Apparently unaware of this guidance, Dr. De Weerdt opines that "[i]n materials science, 'annealing' generally refers to a heat treatment that significantly alters the physical and sometimes chemical properties of a material to improve its properties," using the example that "annealing is used to harden steel." ECF No. 97-39 ¶¶ 50-51; PSOF ¶ 130. Such processing, however, is *specifically* listed in the legislative history as an example of a change that *would not constitute a material change so as to avoid infringement*.

Finally, IIA argues that annealing is "specifically designed to maximize the changes in the annealed diamond that improve its color and clarity," which "are two of the '4 Cs' that drive consumer purchases." Mem. 16-17. That annealing may result in more valuable diamonds, however, is irrelevant to whether they have been "materially changed." Nearly every subsequent processing of a product is for the purpose of bringing it closer to the end product, thereby increasing its value. As IIA's interpretation would conflict with the statute's purpose of providing "meaningful" protection to process patentees, its motion should be denied.[10]

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[10] *See Marion Merrell Dow, Inc. v. Am. Cyanamid Co*., No. 92 5198, 1994 WL 173806, at *7 (D.N.J. May 4, 1994) (denying summary judgment where infringer "uses a patented process to produce an intermediate, converts the intermediate to the only commercially saleable drug product of the process using conventional techniques, and imports that final product"); *OKI Am., Inc. v. Advanced Micro Devices, Inc*., No. 04-03171, 2006 WL 2711555, at *15 (N.D. Cal. Sept. 21,

B. There Are Disputed Issues of Material Fact Regarding Invalidity of the '078 Patent.

1. It Is Disputed Whether the Temperature Gradient Limitation Is Enabled.

IIA raises three challenges to the '078 patent's validity under 35 U.S.C. § 112. Mem. 17-20. As patents are presumed valid, to win its motion, IIA must identify undisputed, clear and convincing evidence. Fed. R. Civ. P. 56(a); *Invitrogen Corp. v. Biocrest Mfg*., L.P., 424 F.3d 1374, 1378 (Fed. Cir. 2005). IIA fails to meet this burden the record is replete with disputed facts.

Under 35 U.S.C. § 112, a patent's disclosures must enable one skilled in the art at the time of the invention to practice the invention without undue experimentation. *In re Wands*, 858 F.2d 731, 736-37 (Fed. Cir. 1988). "Invalidity for lack of enablement is a conclusion of law and must be supported by facts proved by clear and convincing evidence…." *N. Telecom, Inc. v. Datapoint Corp*., 908 F.2d 931, 941 (Fed. Cir. 1990). Purporting to apply these principles, IIA argues that "every embodiment" disclosed in the '078 patent uses a side-contact holder. Mem. 17-20. Therefore, IIA continues, the specification does not enable POSA to "control[] the temperature of the growth surface such that all temperature gradients … are less than 20° C" absent that specific holder configuration. *Id*. Like those above, this argument ignores both the law and the record.

"The enablement requirement is met if the description enables *any* mode of making and using the claimed invention." *Engel Indus., Inc. v. Lockformer Co*., 946 F.2d 1528, 1533 (Fed. Cir. 1991) (emphasis added).[11] The claimed invention here is not a holder; it is a method of controlling the temperature gradient across the growth surface. PSOF ¶¶ 131-32. IIA concedes that the '078

2006) (denying summary judgment, as "subsequent processing steps…do of course make material changes to the physical and electrical properties…, but these changes to not impact the product" of the claimed process).

[11] *See also Durel Corp. v. Osram Sylvania Inc.*, 256 F.3d 1298, 1307 (Fed. Cir. 2001); *Amgen Inc. v. Hoechst Marion Roussel, Inc*., 314 F.3d 1313, 1335 (Fed. Cir. 2003).

patent enables a POSA to practice this limitation: it "provides a specific solution to achieve the claimed method … using a substrate holder that makes thermal contact with the side surfaces of the diamond." Mem 18; PSOF ¶ 133. This is sufficient. *Engel Indus.*, 946 F.2d at 1533.

Even if IIA were correct, however, that all holder configurations must be enabled, IIA still fails to carry its burden. Importantly, the enablement requirement does not prohibit experimentation. *Alcon Rsch. Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1188-89 (Fed. Cir. 2014). Rather, the hallmark of lack of enablement is "*undue*" experimentation, which must be shown by undisputed, clear and convincing evidence. *Id.* (emphasis added); *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1355-56 (Fed. Cir. 2012) (three years of post-filing work not "undue" experimentation). Absent evidence of *undue* experimentation, non-enablement cannot be found as a matter of law. *Alcon*, 745 F.3d at 1189-90; *Cephalon, Inc. v. Watson Pharm., Inc.*, 707 F.3d 1330, 1338-39 (Fed. Cir. 2013). IIA must establish the amount of experimentation required to practice the claims from the perspective of a POSA at the time of the invention; conclusory and vague suggestions do not suffice. *Alcon*, 745 F.3d at 1189; *Cephalon*, 707 F.3d at 1339. But IIA's argument which is unsupported by evidence of a POSA's understanding is silent as to, e.g., how much experimentation is needed, and whether or how that amount of experimentation is undue. Mem. 17-20; *Alcon*, 745 F.3d at 1189.

Plaintiffs, in contrast, offer the perspective of a POSA (Dr. Gleason) that with only routine trial and error a POSA could practice the invention either with or without the specific substrate holder configuration relied on by IIA. The patent specification provides a specific example of a holder that, with only minor modifications, would not make thermal contact with the side surfaces. PSOF ¶¶ 134-37. Notably, such flat plate configurations were already known to those of skill in the art. PSOF ¶¶ 38-43. Implementing this known configuration in the claimed system would be

routine for a skilled artisan undue experimentation would not be required. PSOF ¶¶ 144-45. In fact, in discussing an '078 patent foreign counterpart prior to this litigation, *Dr. Nebel himself* did not describe the '078 patent as limited to particular holder configurations. PSOF ¶¶ 146-52.

Moreover, contact of the substrate holder with the side surfaces is not the *sine qua non* of the claim; it is one of a variety of factors identified by the specification as impacting the ability to control the temperature of the growth surface. PSOF ¶¶ 15-17, 156. These also include, e.g., uniformity of the plasma, controllability of the microwave power, coolant flow rate, coolant temperature, gas flow rates, reactant flow rate, and pyrometer detection capabilities. PSOF ¶ 15-17. A POSA would understand how to use the various factors *regardless* of whether the holder makes thermal contact with the side surfaces. PSOF ¶¶ 15-17, 156-59. How to adjust for these variables is disclosed in the patent and within the routine knowledge of a POSA. PSOF ¶¶ 156-59.

To support its argument, IIA offers alleged "party admissions." Mem. 18. But IIA relies on a presentation drafted 16 years after the patent providing high-level information to bankers not the perspective of POSA. *Id.*; PSOF ¶ 160-61; *Johns Hopkins Univ. v. CellPro, Inc.*, 152 F.3d 1342, 1360 (Fed. Cir. 1998). This presentation does not address whether the patent enables a POSA to "control[] the temperature…such that all temperature gradients across the growth surface are less than 20° C." *See* PSOF ¶ 162. Rather, it notes later work to improve and scale up the claimed process for *commercial production*. PSOF ¶¶ 162-64. That experimentation may have been performed to *commercialize* the invention does not prove that the specification at the time the patent was filed did not enable a POSA to "control[] the temperature," as claimed.[12] *CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1339-40 (Fed. Cir. 2003); *Transocean Offshore Deepwater*

[12] IIA relies on other post-patent research, but that too was directed at developing a "commercially viable diamond." Mem. 20; PSOF ¶ 165.

Drilling, Inc. v. Maersk Contractors USA, Inc., 617 F.3d 1296, 1306-07 (Fed. Cir. 2010); PSOF ¶ 164. And, while IIA implies that Plaintiffs took a decade to produce a diamond, the '078 patent was licensed to M7D in 2011 and a diamond was grown in 2012. PSOF ¶ 166-68.

Finally, IIA relies on Dr. Vohra's testimony regarding the alleged importance of holder design. Mem. 19. That Dr. Vohra or others deemed holder design important does not mean that one specific design (the side-contact holder) was the only manner in which skilled artisan could control the temperature gradient based on the specification. Nor does it negate the disclosures of the patent itself, coupled with the knowledge of a skilled artisan.

2. It Is Disputed Whether the Temperature Gradient Limitation Is Adequately Described.

For the same reasons above, IIA posits that the invention is not adequately described. Mem. 17-20. The test for written description is "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharm., Inc. v. Eli Lilly & Co*., 598 F.3d 1336, 1351 (Fed. Cir. 2010). This is a question of fact, *Alcon*, 745 F.3d at 1190, which IIA must prove by clear and convincing evidence. *Invitrogen Corp*., 424 F.3d at 1378.

IIA's written description arguments which lack evidence of a POSA's understanding of the patent are littered with factual disputes. Plaintiffs have offered evidence that the claimed invention is adequately described. The specification *repeatedly* describes the challenged limitation and provides a POSA means by which to practice it. PSOF ¶¶ 169-71. In some instances, the specification describes the use of a side-contact holder; in other instances, no reference is made to thermal contact. PSOF ¶ 170. A POSA would thus understand that the inventor possessed methods with and without thermal contact between the substrate holder and side surfaces. PSOF ¶ 171. Indeed, as noted above, *Dr. Nebel himself* did not consider the '078 patent to be limited to side-

contact holders. PSOF ¶¶ 146-55.

Moreover, a POSA reading the patent would understand that the '078 patent discloses several factors to control the temperature apart from thermal contact between the holder and side surfaces, as detailed above. PSOF ¶¶ 15-17, 156-89. A POSA would have understood the patent teaches using these combined factors to achieve the claimed temperature gradients. PSOF ¶ 158.

IIA myopically focuses on the patent's *example* holder (Mem. 18), but examples of the claimed invention are not required to satisfy the written description requirement. *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1366-68 (Fed. Cir. 2006). It is sufficient that POSA would have known that there are many different ways to design a substrate holder, including the use of a flat plate, PSOF ¶ 134-39, which was envisioned by '078 patent Figure 2b (PSOF ¶¶ 134-37) and had previously been used in MPCVD systems. PSOF ¶¶ 138-43; *Falkner*, 448 F.3d at 1366-68.

IIA's reliance on extrinsic evidence remains misplaced. Written description "'requires an objective inquiry into the four corners of the specification" not of statements in after-the-fact documents. *Alcon*, 745 F.3d at 1191 (quoting *Ariad Pharm.*, 598 F.3d at 1351). Later process improvements for commercialization are not germane to whether a POSA would understand from the patent itself that the inventor possessed the actual claimed invention, i.e., "controlling the temperature … such that all temperature gradients across the growth surface are less than 20° C."

3. It Is Disputed Whether Lower Temperatures Are Adequately Described.

IIA asserts that, because the specific examples in the specification do not describe a process at lower temperatures (but without oxygen), claims 12, 16, and 20 are not adequately described to the extent they cover such a process. Mem. 20-22. Again, examples are not required to satisfy written description. *Falko-Gunter Falkner*, 448 F.3d at 1366-68. Moreover, the asserted claims do not recite (and the specification need not describe) a required oxygen composition. PSOF ¶ 172.

The patentee need only describe the *claimed invention*. *Spine Sols., Inc. v. Medtronic Sofamor Danek USA, Inc*., 620 F.3d 1305, 1313 (Fed. Cir. 2010). The patent claims a temperature range; that range is described in the specification: "temperature may be selected from a range of **about 900-1400° C**...." PSOF ¶ 172. This is also true with respect to lower temperatures; in Example 2, "[a] high-quality, pure CVD single crystal diamond … was created … by adding a small amount (1-3%) of oxygen and lowering the growth temperature to 900 degrees Celsius." PSOF ¶ 175

IIA nonetheless argues from selective sources (Dr. Vohra's testimony, a research paper, and '078 patent Table 1) that the inventors' report of "black diamond-like carbon" evidences that they lacked possession of a lower temperature process without oxygen. Mem. 21. IIA implies that, given the presence of "black-diamond like carbon" in Example 1, single-crystal diamond could not have been grown. *Id.* But IIA fails to distinguish this from the "insubstantial non-monocrystalline growth" accepted by the Court's construction. Regardless, this carbon is the result of the specific process variables used in Example 1. PSOF ¶ 176. A skilled artisan would not assume that the same would result from different overall process conditions, even at temperatures below 1000 °C. PSOF ¶ 176. This is especially so given that Example 2 describes the growth of single-crystal diamond at 900 ºC. PSOF ¶ 175. That oxygen was added in Example 2 does not mean that a POSA would understand that oxygen was the only way to grow diamond at lower temperatures. PSOF ¶ 177. Indeed, in describing a '078 foreign counterpart, Dr. Nebel (outside of this litigation) described the invention with temperatures as low as 900 °C without reference to oxygen. PSOF ¶ 153. And prior art cited by Dr. Nebel explained that diamond growth was achieved "in the temperature range of 820-950 ºC." PSOF ¶ 180. A POSA would have known how and if to adjust the gas mixture to account for temperature. PSOF ¶ 182.

IIA's retreat to extrinsic evidence is again unavailing. Mem. 21. While M7D CTO Mr.

Tsach unremarkably confirmed that the patent lacked an express example of a lower-temperature, no-oxygen process, he nowhere contested that a POSA would nonetheless understand that the inventor possessed such a process. PSOF ¶ 181. Mr. Tsach separately clarified that he did not think "the temperature range depends on the gas chemistry," but rather that the patent taught "that both the gas chemistry and the temperature needs to be maintained in certain ranges in order to achieve a diamond growth." PSOF ¶ 179. Additional testimony from named inventor Dr. Hemley confirms the specification did not "rule out" diamond growth at lower temperatures. PSOF ¶ 178.[13]

C. Whether the Asserted Claims of the '189 Patent Are Indefinite Is Disputed.

IIA also seeks summary judgment that the asserted claims of the '189 patent are invalid as indefinite. IIA fails to establish the absence of a material factual dispute. IIA must show by clear and convincing evidence that the asserted claims when viewed in light of the specification, prosecution history, and a POSA's background knowledge fail to inform a POSA of the scope of the invention with reasonable certainty. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). This standard is not as demanding as IIA surmises: the Court has recognized that "absolute precision is unattainable" and "the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter." *Id.* (citations omitted).

Here, a POSA at the time of the patent application (June 3, 2002) would understand the scope of the claims with the certainty reasonable in the field of experimental chemistry. The claim language requires "a set temperature of at least 1500° C. and a pressure of at least 4.0 GPA outside of the diamond stable phase." PSOF ¶ 184. Plaintiffs' experts have explained that any uncertainty

[13] IIA points to Claims 4 and 7, which recite the 900-1400° temperature range with (Claim 4) or without (Claim 7) oxygen, as demonstrating the "importance" of oxygen in Claim 12. Mem. 21. Claims 4 and 7 are independent from Claim 12. PSOF ¶ 183. Regardless, these claims merely underscore that a POSA would understand that this is a separate invention. *Cf. Capon v. Eshhar*, 418 F.3d 1349, 1358 (Fed. Cir. 2005) (written description "determined claim by claim").

from the term "outside the diamond stable phase" would be reasonable in the field of chemistry. PSOF ¶¶ 185-86, 189. There is no uncertainty surrounding the claimed temperature and pressure values, and a POSA would understand if a given annealing process occurred "outside the diamond stable phase" based on background knowledge and available scientific literature. PSOF ¶¶ 185-86. The determination would be based on the POSA's understanding of the boundary line between the diamond and graphite phases of carbon, which was well understood, a familiar thermodynamic concept for skilled artisans, and the subject of several scientific studies. PSOF ¶ 187.

There is no imprecision surrounding the scientific definition of the boundary line. The "uncertainty" in the literature is in the thermodynamic and experimental *data* used to estimate the boundary, leading to some scientific disagreement around the value of certain thermodynamic parameters establishing the boundary line. PSOF ¶ 188. But the line itself is a thermodynamic truth that exists at a precise location, and POSAs understood its location with reasonable certainty given the experimental nature of the data involved. IIA recognizes that the boundary line was extensively assessed in the literature, various estimates were available, and a POSA would look to them to gain a reasonable understanding of its location. SOF ¶¶ 133, 135, 137-139, 142. A POSA would review the full body of literature to gain the necessary understanding of the boundary, PSOF ¶ 186, and would not view any surrounding experimental uncertainty as unreasonable.[14]

In the end, the extent of uncertainty present and whether it was unreasonable in the field are both factual disputes. Plaintiffs experts have explained that any "uncertainty surrounding the precise placement of the phase boundaries would not trouble a person of skill in the art," who would "ascertain within the uncertainty permitted in chemistry whether a particular condition was

[14] *Twilio, Inc. v. Telesign Corp.*, No. 16-CV-06925, 2017 WL 4573371, at *11 (N.D. Cal. Oct. 13, 2017) ("a sufficiently 'familiar' or 'common understanding' of [the claim term]").

inside or outside the diamond-stable phase." PSOF ¶ 190.

To detract from the factual disputes, IIA points to testimony from Dr. Hemley, M7D's corporate witness (Mr. Tsach), and Carnegie's corporate witness (Dr. Walter), supposedly showing the "lack of a clear metric" for assessing the claim boundary. Mem. 23. That testimony does not address the pertinent issue whether the claim scope is defined with reasonable certainty.[15]

IIA also seeks shelter in two inapposite cases dealing with undefined mathematical calculations for a claimed physical property. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1338 (Fed. Cir. 2015) involved claims to copolymers of a certain "molecular weight." But molecular weight could be calculated by three different statistical methods, and the claims did not specify which to use. *Dow Chemical Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620, 631 (Fed. Cir. 2015) involved claims to polymer compositions with a "slope of strain hardening coefficient greater than or equal to 1.3." *Id.* That slope could be calculated by three different geometric methods in the field, the claims did not specify the method, and the patentee's expert used a fourth method fabricated for litigation, which was not standard in the field. *Id.* at 633. Here, a POSA is faced with no choice of mathematical methods to assess infringement they would compare the accused annealing methods with the available phase diagrams in the literature to determine if the methods infringe with the reasonable certainty possible in the field of experimental chemistry. PSOF ¶¶ 185-86. The claim scope is thus defined with the reasonable certainty possible in the field of chemistry, notwithstanding IIA's attempt to erase a POSA's background knowledge,

[15] Dr. Hemley merely recognized the phase boundary definition in his 1996 publication (PSOF ¶ 191), and Mr. Tsach the differing description of the phase diagram (PSOF ¶ 192). Neither deponent assessed if any uncertainty in the claim language was unreasonable in the field. Dr. Walter, moreover, explained that published phase diagrams were "all pretty close to each other," the boundary lines "might shift from publication to publication to some slight degree," and the characterization "has changed to some degree, but not significantly." PSOF ¶ 193.

familiarity with the scientific literature, or the robust library of published data. PSOF ¶ 186.

D. Whether the Asserted Claims of '189 Patent Are Infringed Is Disputed.

IIA turns to the opposite extreme to seek summary judgment of non-infringement. Instead of maintaining its view that the graphite/diamond boundary is too poorly defined, IIA now claims that "*Bundy* was the most up-to-date and reliable authority on the diamond-graphite boundary," citing Dr. De Weerdt's rebuttal report on infringement. Mem. 24. But Dr. De Weerdt walks away from his earlier explanation that, while *Bundy* was "the most up-to-date and reliable authority at the time the application for the '189 Patent was filed, *Anthony-4* and *Vagarali-1* [two pre-patent publications] both suggest that other definitions, like the one provided in the 1976 Kennedy & Kennedy study, also still persisted at the time, leading to competing standard." PSOF ¶ 197.

Dr. De Weerdts's earlier assessment is consistent with the opinions of Plaintiffs' experts Drs. Capano and Gleason: Dr. Gleason explained that "a skilled artisan would survey the available literature and make a well-informed determination of the phase boundary," PSOF ¶ 190, which is exactly what Dr. Capano did to assess infringement. He "reviewed each of the [six] references" in question "to gather an understanding of the analysis in each of the papers." PSOF ¶ 189. Based on his comprehensive review, he determined that IIA's annealing processes infringe the asserted claims. PSOF ¶¶ 200-02. The three experts thus agree that a POSA would survey the full body of scientific literature rather than deem any particular publication as gospel. PSOF ¶ 203. In fact, a review of the literature shows that the depiction in *Bundy* was "lower than those in each of the other references" and could thus be viewed as an outlier. PSOF ¶ 189. Dr. Capano's infringement analysis, based on the full body literature at minimum raises a genuine factual dispute.

IV. CONCLUSION

For the foregoing reasons, IIA's motion for summary judgment should be denied.

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Respectfully submitted,

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